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ABSTRACT

Physical education is a direct service which should be provided to all students with mental disabilities. Instruction in physical education should be guided by a comprehensive plan which outlines long-term goals and sequential objectives leading to attainment of these goals. The Achievement Based Curriculum model serves as an example of such a plan. The program plan can be established by either modifying the regular physical education curriculum for the mildly disabled or by designing individualized programs for the more severely disabled. Qualitative (criterion-referenced) tests should be used to assess, prescribe, implement, and continuously evaluate instruction. Four sources of qualitative assessment items include: "Project I CAN," "Michigan Essential Performance Objectives," "Data Based Gymnasium," and "Project Transition." Instruction should be implemented to maximize student success, time on task, and repetition of desired behaviors. Demonstrations and physical manipulation should be used to communicate both correct and incorrect performances. Non-competitive games and activities should be carefully selected to match specific instructional objectives. Formal and informal continuous evaluation procedures should be employed so that both teachers and students can be apprised of their performance. The physical education program should be integrated with community-based recreation programs to facilitate transition to independent use of leisure skills in community settings. Six figures are included. (JDD)

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Chapter Fourteen

Physical Education

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Before beginning a discussion on physical education for the mentally disabled an understanding of exactly what is meant by the term Physical Education and how this field differs from related fields such as physical therapy, occupational therapy, and recreational therapy is important. Physical education is defined in Public Law 94-142:

> (i) The term means the development of:
>
> (A) Physical and motor fitness
> (B) Fundamental motor skills and patterns; and
> (C) Skills in aquatics, dance, and individual and team sports (including individual and lifetime sports).
>
> (ii) The term includes special physical education, adapted physical education, movement education, and motor development. (Federal Register, August 23, 1977, p.42480)

The rights of special education students to receive appropriate physical education instruction was delineated in PL 94-142 in the definition of Special Education:

> . . .specially designed instruction, at no cost to parents or guardians, to meet the unique needs of a handicapped child, including classroom instruction, instruction in physical education , home instruction, and instruction in hospitals and institutions. (Federal Register, August 23, 1977, p. 42480)

The inclusion of physical education in the definition of special education distinguishes it as a direct service as opposed to a related service which was defined in PL 94-142 as:

> . . .transportation and such development, corrective, and other supportive services as are required to assist a handicapped child to benefit from special education, and includes speech pathology and audiology, psychological services, physical and occupational therapy, recreation . . . (Federal Register, August 23, 1977, p. 42479).

Related services, as indicated above, are designed to complement the direct services specified in the definition of special education and not as substitutes for these services. This, unfortunately, is a common misconception when distinguishing physical education from the related services of physical therapy, occupational therapy and recreation. In many cases, this problem is related to a lack of understanding as to the differences between these fields. For the purpose of clarification each of these fields will be briefly described.

Physical therapy is traditionally associated with using exercise, evaluating reflex activity, muscle tone and range of motion and developing functional mobility skills (learning to walk, use crutches, prostheses, braces, or a wheelchair) under the supervision of a physician.

Occupational therapy historically has focused on the development of independent living skills, fine motor control, and the creation of assistive devices (splints, modified spoons, etc.) needed to perform independent living skills.

Recreation is usually simply defined as voluntary use of one's leisure time. Therapeutic recreation is a specialized field within recreation designed to assist individuals to learn how to recreate. Therapeutic recreators provide services in leisure assessment, leisure education, leisure counseling, the transition from school or institutional programs to community recreation programs, and the provision of recreation programs. Therapeutic programs can involve a wide variety of activities such as sports, arts and crafts, dance, music, and drama.

Although there is some overlap between each of these fields, they each have a unique focus and subsequently are designed to make a unique contribution to the motor development of individuals with mental disabilities. The question, therefore, should not be which ONE of these services should be provided but instead what combination of these services are needed to help students reach their maximum physical and motor potential. Since physical education is the primary service, it is probably most appropriate for the adapted physical educator to provide the leadership in this area and involve the appropriate related services as needed depending on the individual needs of each student.

PHYSICAL AND MOTOR DEVELOPMENT

Historically, research has shown that individuals with mental disabilities are motorically delayed, possess low levels of physical fitness, have a greater tendency for obesity and are prone to more health problems. Further these deficits tend to increase with age and with the severity of the mental disability (Dobbins & Rarick, 1977; Francis & Rarick, 1959; Howe, 1959; Kelly, Rimmer, & Ness, 1986; Londeree & Johnson, 1974; Rarick, Widdop, & Broadhead, 1970). Research has also shown that these deficits can be remediated to a marked degree given the provision of appropriately designed and implemented instruction in physical education (Adams, 1971; Brown, 1968; Chasey & Wyrick, 1971; Corder, 1966; Solomon & Pangle, 1967). The remainder of this chapter focuses on the promising practices that have been identified in the literature as effective strategies for developing physical and motor skills in individuals with mental disabilities. These practices will be presented using the Achievement Based Curriculum (ABC) model (Wessel & Kelly, 1986) as an organizational structure. The ABC model (see Figure 1) implies that quality instruction be objective, systematic and constantly improving.

PLANNING

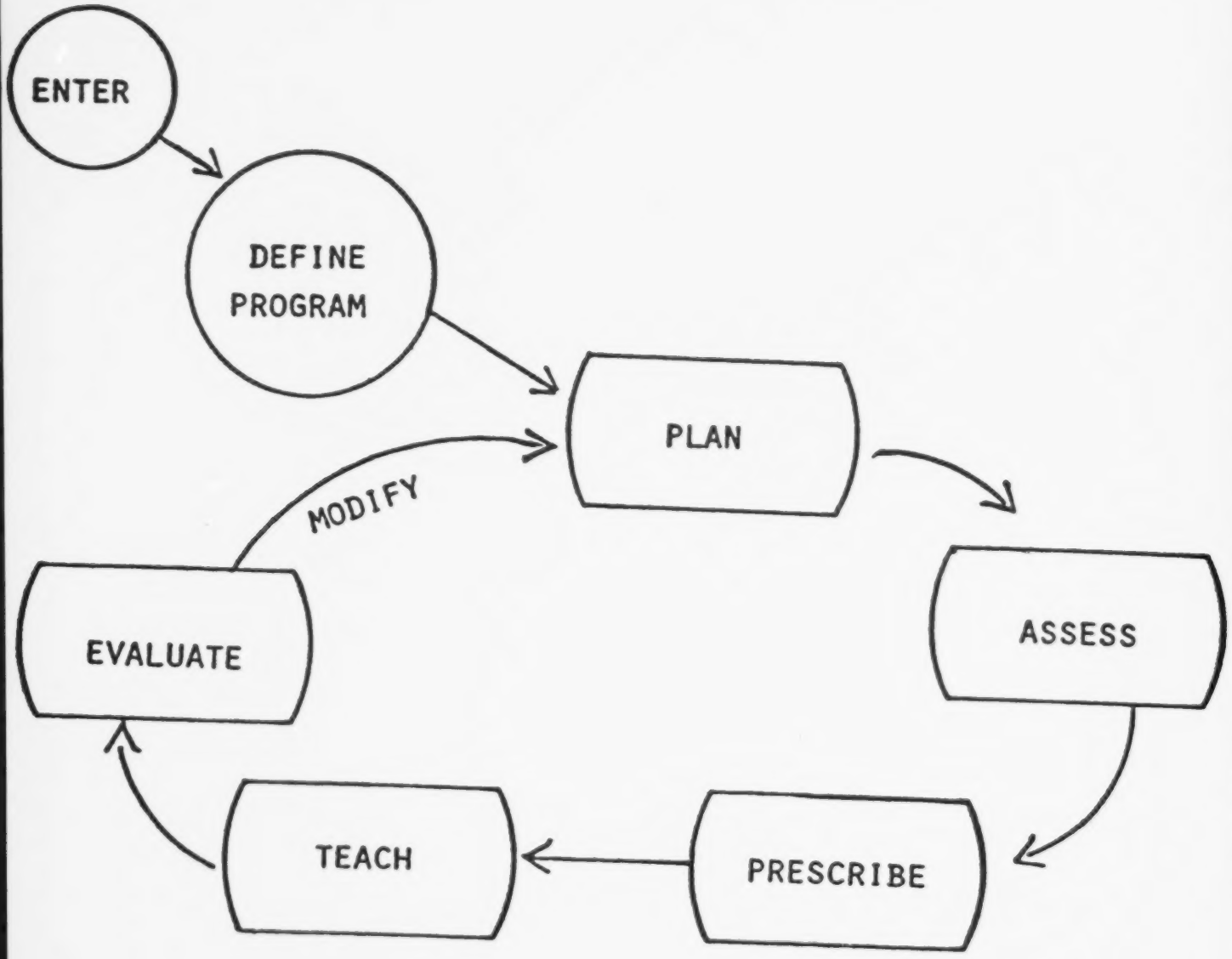
The first step to providing appropriate and quality physical education to individuals with mental disabilities in the ABC model is the establishment of a written program plan. A program plan defines what students will be able to do at the end of the program (program goals) and how these goals will be achieved via a sequence of instructional objectives. The scope of a program plan can range from an individual student's IEP to a K-12 curriculum. The program plan provides the basis for making instructional decisions, carrying out student and making program evaluation and subsequent modifications to the program plan.

The program planning process is essentially composed of four procedures: establishing program goals, determining goal emphasis, selecting and ranking

objectives by goal, and sequencing the selected objectives across grades according to the goal emphasis and the ranking of the objectives. As a general rule, the goals of physical education are the same for all students. Common physical education goals are:

Figure 1

Achievement Based Curriculum
Implementation Model



1. Develop and maintain functional levels of physical fitness.

2. Develop competency in body management including body control and body awareness

3. Develop mature locomotor patterns (i.e., run, hop, skip)

4. Develop mature object control skills (i.e., throw, catch, kick)

Figure 2 illustrates the scope and sequence of goals commonly addressed in a K-12 physical education curriculum. The pyramid structure implies the hierarchical nature of the goals. That is, for individuals to master the lifetime sport skill of tennis they must have previously acquired the prerequisite body management and fundamental motor skills. This implies that the emphasis placed on the various program goals will be different both within and across the program levels. The body management goal will most likely be a major focus of the lower elementary program and receive very little emphasis at the secondary level. Lifetime sports skills, on the other hand, will receive little or no emphasis during the lower elementary grades and will be the major focus of the secondary program.

The culmination of the ABC program planning process is the creation of an objective by grade by goal chart or a program plan that indicates what objectives will be addressed for each goal and when each objective will be taught and achieved in the program. Figure 3 illustrates a regular education K-5 elementary physical education program plan. This plan can be used as a starting point for making placement and instructional decisions for all students in the school.

The generic goals shown in Figure 2 are generally the same for all students, disabled and non-disabled alike. For example, it is desirable for all students to be physically fit, to develop body management skills and to have functional leisure skills. What does differ, however, is the degree to which these goals can be achieved. Assuming physical education instructional time is held constant for all students (i.e., 5 times a week for 30 minutes each day), non-disabled students may be taught to develop and maintain their cardiovascular endurance via a number of sport skills such as running, swimming, biking, skiing, rollerskating, rowing, or aerobic dance. More students with severe disabilities, on the other hand, may only be able to learn one functional skill (e.g., swimming) to develop and maintain their cardiovascular system in the same amount of time. This is an extremely important point for teachers providing physical education instruction to students with mental disabilities to understand. Programs must be designed so that all students achieve the program goals. This means in most schools, where the instructional time in physical education is predetermined, critical decisions must be made early for those students who acquire skills at a slower rate. What is being suggested here is to approach programming for the mentally disabled in a top down rather than a bottom up approach. The regular physical education curriculum is typically designed around a bottom up philosophy of providing the students with as wide a base as possible in the areas of body management and fundamental motor skills so that they have the skills to pursue a wide variety of lifetime sport skills in high school and in later life. Given the time required for the individuals with mental disabilities to learn motor skills and the fixed amount of instructional time available in physical education, programming for these individuals must employ a top down approach. Based on students' entry levels and learning rates, decisions have to

be made regarding what functional lifetime sports skills would be most appropriate for these individuals and then appropriate programs designed to provide the essential body management and fundamental motor skills needed to learn these skills in the time available.

Figure 2

Basic Skill Objectives Consistent
With Program Goals Needed by All Students

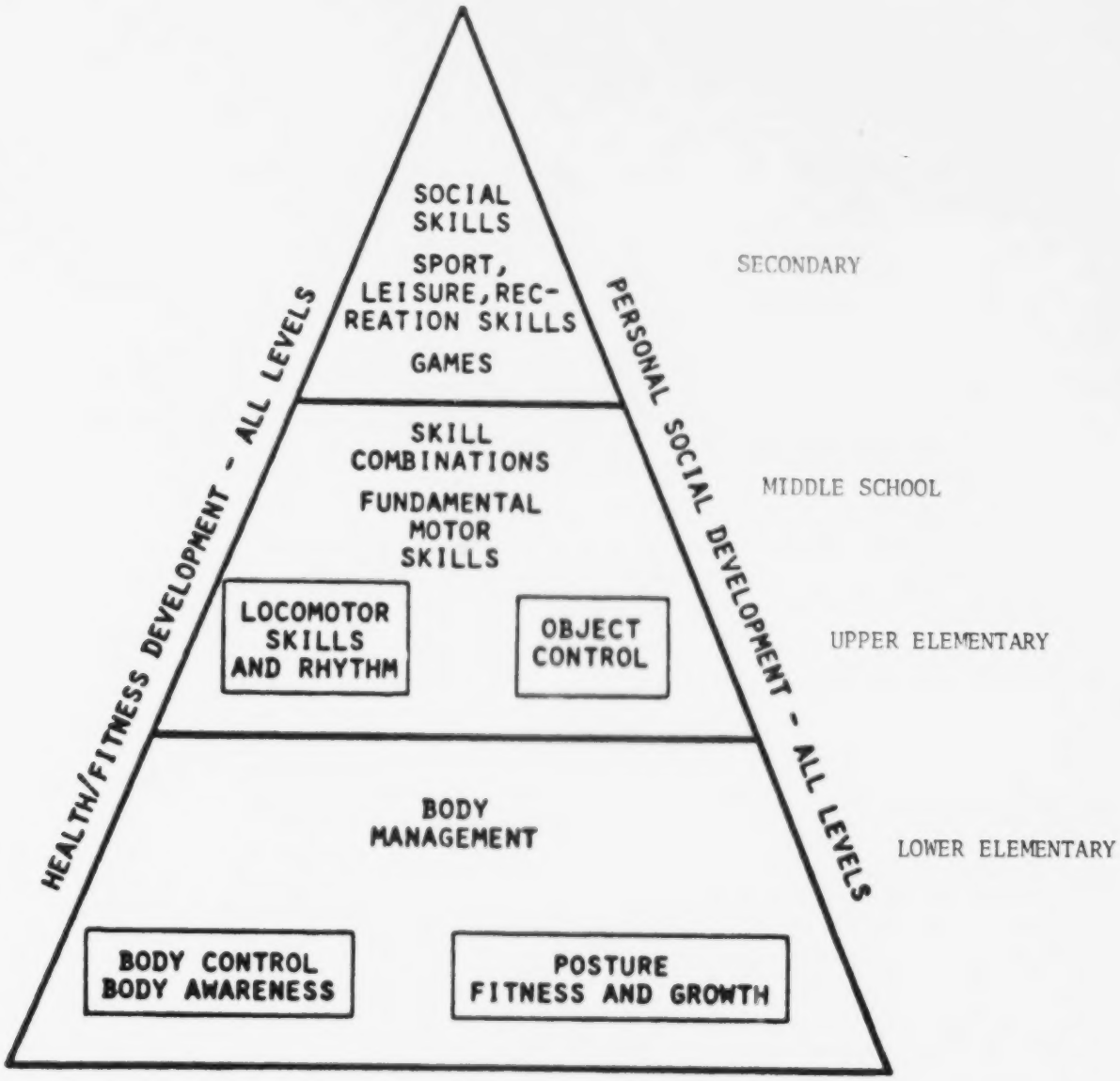


Figure 3

Sample Program Plan

K-5 PROGRAM PLAN

Goal Area			K	1	2	3	4	5	Curriculum Page #
Locomotor Patterns	1.1	Run	XX						26
	1.2	Gallop	XX						29
	1.3	Horizontal Jump			XX				38
	1.4	Vertical Jump			XX				61
	1.5	Hop (right-left)		XX					37
	1.6	Slide		XX					40
	1.7	Skip				XX			82
	1.8	Leap					XX		107
Object Control	2.1	Underhand Roll	XX						22
	2.2	Bounce/Dribble			XX				64
	2.3	Underhand Throw		XX					43
	2.4	Overhand Throw					XX		110
	2.5	Kick				XX			85
	2.6	Punt						XX	133
	2.7	Two-Hand Side Arm Strike (Baseball)				XX			88
	2.8	Catch/Fielding						XX	138
	2.9	Underhand Strike (Volleyball Serve)					XX		113
	2.10	Chest Pass (Basketball)			XX				67
	2.11	Bounce Pass (Basketball)				XX			91
Physical Fitness	3.1	Knowledge						XX	139
	3.2	Training Concepts						XX	144
	3.3	Terminology					XX		116
	3.4	Leg Strength			XX				70
	3.5	Flexibility			XX				73
	3.6	Abdominal Strength				XX			94
	3.7	Endurance					XX		120
	3.8	Arm & Shoulder Strength						XX	149
	3.9	Agility					XX		123
	3.10	Speed						XX	153
Social	4.1	Self-Discipline (Control)		XX					46
	4.2	Cooperation		XX					48
	4.3	Good Sportsmanship				XX			97
	4.4	Handling Winning & Losing			XX				76
	4.5	Respect Equipment & Property	XX						25
Body Management	5.1	Non-Locomotor	XX						27
	5.2	Body Awareness	XX						30
	5.3	Spatial Awareness	XX						32
	5.4	Use of Space			XX				51
	5.5	Quality of Movement			XX				79
	5.6	Relationship of Body to Other Objects				XX			100
	5.7	Basic Dance Patterns					XX		126
	5.8	Forward Roll						XX	156
	5.9	Rope Jumping				XX			103
Game & Sport Skills	6.1	Follow Directions	XX						34
	6.2	Knowledge of Safety & Rules		XX					54
	6.3	Member of Team					XX		129
	6.4	Participates in Games and Sports						XX	159

XX indicates when the objective is to be mastered. This does not mean that the objective is only worked on during this year. Many objectives will be worked on during all the years preceding, mastery and even after mastery has been achieved for retention.

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Using a bottom up approach of programming for the mentally disabled in physical education generally results in only minimally achieving a few of the program goals and usually does not provide the students with any functional lifetime sport skills. For example, let's examine the case of a hypothetical child who is moderately mentally disabled, and starting school at age five. Current research indicates that this student is likely to be 2-4 years behind in his motor skills and will require approximately twice as much instructional time (learns at half the normal rate) as a non-disabled child. Following the bottom up curriculum and assuming that the child's motivation could be maintained, this student will probably only have achieved the objectives targeted for the fourth or fifth grade in the regular physical education curriculum by the end of 12 years of instruction. Leaving him with no functional physical or motor skills that he can use in his abundant leisure time after school.

What does all this mean in terms of the mentally disabled? First, the regular physical education program plan provides a starting point for decision making. For the mildly mentally disabled, most will be able to follow the regular physical education program plan with only minor modifications. Current research indicates that the mildly mentally disabled are more like the non-disabled in terms of their physical and motor skills then they are like the other categories (moderate and severe) of mental disability. When modifications are required for this group they should be made within the goal areas by stressing the achievement of the most essential objectives within each area. The alternative is exposure to a wide range of objectives, none of which are achieved. These individuals may also require supplementary adapted physical education to keep them on skill level with the other students in a mainstreamed physical education class.

ASSESSMENT

The key to making appropriate decisions in physical education for students with mental disabilities is assessment. Teachers can be called upon to make three types of decisions related to physical education and students with mental disabilities: eligibility, placement, and instructional decisions.

Both norm-referenced and criterion-referenced tests can provide valuable information needed to make accurate decisions. The key is knowing which type of test to use. As a general rule, norm-referenced tests are most commonly used for eligibility decisions and criterion-reference tests are most appropriate for placement and instructional decisions. This is not to imply that criterion-reference tests can never be used to make eligibility decisions or that norm-reference tests on occasion would not be appropriate for making a placement or instructional decision.

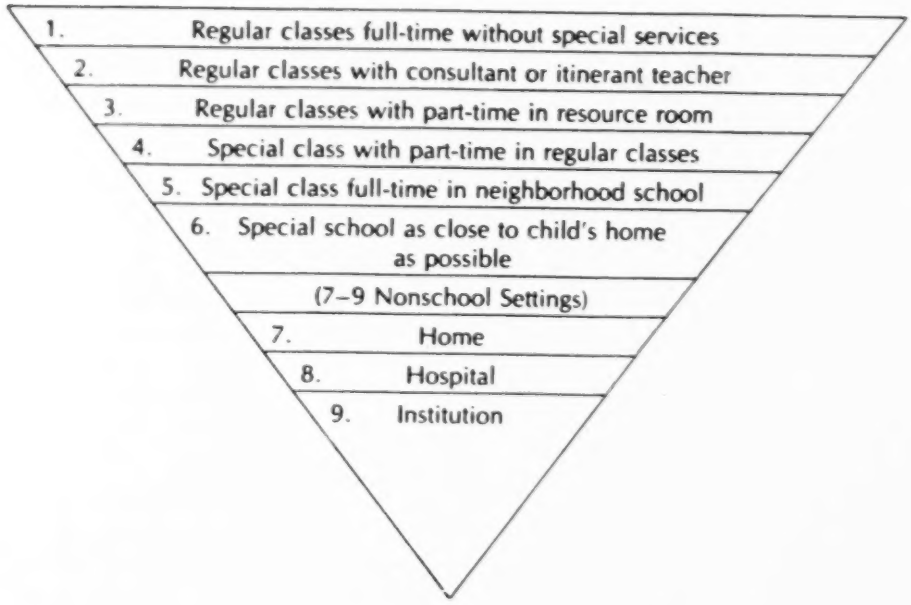
Eligibility decisions are related to determining whether a student's physical and motor deficits are severe enough to qualify for special education services. This form of evaluation usually involves the use of norm-referenced assessment instruments (e.g., Bruininks-Oseretsky Test of Motor Proficiency) which are administered by an adapted physical educator as a member of an evaluation team assigned to evaluate a student's physical, social, and learning skills.

The second type of decisions, which most commonly will be made by an adapted physical educator, are placement decisions. Placement decisions involve determining what is the most appropriate and least restrictive instructional setting in which to

address a given student's physical and motor needs. The key words here are appropriate and least restrictive. Appropriate means determining that a student's specific physical and motor skills can be adequately addressed in a given physical education environment. Least restrictive means that the students should be, to the maximum extent possible in terms of appropriateness, educated with non-handicapped students. Least restrictive implies that there be a continuum of placements available in physical education. Figure 4 illustrates a continuum of physical education placements commonly available in most public schools. Placement decisions are typically made by evaluating a student's present level of performance on the objectives targeted for instruction in the regular curriculum, using criterion-referenced tests, and then comparing the performance levels obtained with those of the students in the regular setting. If the student's performance levels on the program objectives are within reasonable proximity of the students in the regular physical education program, then placement options 1-3 (see Figure 4) may be considered. If the discrepancy between the student's performance and the students in the regular program is too great, then options 4-6 should be considered. It should be noted that the decision making process presented above was discussed in terms of only one dimension, student physical and motor performance. It should be understood that a number of other variables must also be evaluated when making a placement decision such as class size, the range of abilities already in the class, the competencies of the target teacher, and the student's social, behavioral and learning characteristics.

Figure 4

Continuum of Physical Education Placement


1. Regular classes full-time without special services
2. Regular classes with consultant or itinerant teacher
3. Regular classes with part-time in resource room
4. Special class with part-time in regular classes
5. Special class full-time in neighborhood school
6. Special school as close to child's home as possible
(7–9 Nonschool Settings)
7. Home
8. Hospital
9. Institution

The most common type of assessment decision made by teachers providing physical education services to students with mental disabilities are instructional decisions. Instructional decisions involve determining what to teach a student on an objective targeted for instruction. Instructional decision making employs the use of qualitative assessment instruments which are used constantly before, during and after instruction. Prior to beginning instruction on a given objective, such as catching, the teacher must first assess each student in the class to determine what he or she can and can not do in terms of the qualitative components of this skill:

1. Correct preparatory position - eyes focused on the ball, knees slightly flexed, hands in front of the body, elbows flexed and near the sides of the body.

2. Arm extension - the arms extend in the direction of the ball in preparation for ball contact.

3. Contact - the ball is caught with the hands only; fingers spread and slightly flexed with palms facing.

4. Follow through - the elbows bend as arms absorb the force of the ball.

This information is then used to plan instruction: select games, activities, and drills as well as group students to optimize learning of the target skill. During instruction, the qualitative components are
continuously used by the teacher to evaluate each student's performance and to provide explicit feedback. Following instruction, the students' qualitative performances are used to plan the next lesson.

One of the advantages of qualitative assessment items is that they can be easily created or modified (divided into smaller learning steps) by the process of task analysis. A large number of physical education objectives have already been task analyzed for use with special populations. So as not to waste valuable instructional time reinventing the wheel, teachers should review existing qualitative test items before creating their own. In many cases, an appropriate task analysis can be found or created by simply modifying an already existing item. Four sources of qualitative assessment items are briefly described below.

Project I CAN

Project I CAN (Wessel, 1976; 1979; 1980) is probably the largest and most comprehensive physical education curriculum available for the mentally disabled. I CAN was originally developed to address the need for an objective and systematic physical education curriculum for the moderately mentally retarded. The I CAN materials are built upon the ABC model and are composed of 175 objectives which include 14 instructional units distributed across three instructional levels: preprimary, primary, and secondary. Each performance objective in the materials is accompanied by: a criterion-referenced assessment item, an assessing activity, instructional activities for each component of the objective, games to complement the instructional activities, as well as record keeping and progress report forms. Since its creation, I CAN has been extensively field tested with children with mild, moderate and severe mental disabilities and has been reviewed and approved by the National Diffusion Network as a Model physical education curriculum. As

an approved program, state and federal funding is available to schools who are interested in receiving training and adopting this program. A separate manual (Wessel, 1981) has also been designed to assist teachers working with the severely handicapped using the I CAN materials.

Michigan Essential Performance Objectives

The State of Michigan essential performance objectives for physical education (Michigan State Board, 1980) were in part, derived from I CAN and are used by the state to evaluate student competencies in physical education at the 4th, 7th, and 10th grades for both non-handicapped and special education students. Essential physical education performance and cognitive objectives are identified for three grade groupings: grades 1-3, 41 performance objectives and 7 cognitive objectives; grades 4-6, 37 performance objectives and 15 cognitive objectives; and grades 7-9, 9 performance objectives and 22 cognitive objectives. Additional assessment training and instructional materials are also available to support these essential objectives (Michigan State Board, 1981; 1983; 1984).

Data Based Gymnasium

Data Based Gymnasium (Dunn, 1980) was created at Oregon State University and was designed to provide a physical education curriculum for the severely handicapped. This project was based on Frederick's (1979) work, A Data Based Classroom for the Moderately and Severely Handicapped. This program takes a behavioral approach to instruction and focuses on skill development in four areas: Movement Concepts, Fundamental Motor Skills, Physical Fitness, and lifetime Sport Skills. This program has been extensively field tested and has been approved by the National Diffusion Network as a Model program.

Project Transition

Project Transition (Jansma, Ersing, & McCubbin, 1986) was developed at Ohio State University and was designed to focus on physical fitness and hygiene training for the severely and profoundly mentally retarded. The five physical fitness items addressed in this project are 300 yard run/walk (cardiorespiratory endurance), grip strength, modified situps (abdominal endurance), modified bench press (upper body strength and endurance), and a modified sit and reach (lower back and hamstring flexibility). The unique feature of these physical fitness test items are that they were designed to measure both qualitative and quantitative behaviors and that the qualitative measures include indices of how the skill was performed and level of independence as well as. This additional level of qualitative assessment is extremely important when working with the more severely and profoundly mentally disabled in order to record actual changes in behavior.

PRESCRIPTION

Prescription is the process of planning instruction at the lesson level. To prescribe instruction or plan a lesson, teachers must first know what objectives they specifically want to address in the lesson (from the program plan) and where the students are on these objectives (preassessment data). With this information in hand. teachers can then plan instruction. While an extensive discussion of instructional and

managerial strategies is beyond the scope of this chapter, the following three principles deserve specific attention when planning instruction for students with mental disabilities:

1. Clarity and consistency of instruction - make sure the students understand exactly what skill or skills they are working on, why they are working on those skills, and what specific component of each skill they should be focusing on during instruction and practice.

2. Plan for Success.

3. Maximize on task time - effective use of space, equipment, staff, and organizational strategies.

Clarity and Consistency of Instruction

A direct, straight-forward method of instruction is recommended when teaching physical and motor skills to the mentally disabled. This instruction should focus on setting clear expectations for the students regarding what content they are learning, why it is important for them to learn this content, and what specifically they need to work on to master the content. This implies that the teacher must teach each objective prior to expecting students to apply these skills in game situations. This differs from selecting a game or activity and assuming that just because the students are given an opportunity to participate they will somehow magically acquire the skills that are involved. If and when games are used, students should know what specifically they are working on while they play the game. A recommended procedure is to first teach the students the qualitative components of the objectives they are working on. This is time well spent because it provides a basis for attending to instruction and for self-evaluation. All too often, teachers somehow expect students to deduce these components from their demonstrations and random instructional cues (step with the other foot, point your fingers). For lower functioning students, simple labels for the performance components can be employed such as the start position, action, and stop position.

A second recommendation is to use a standardized lesson format that is followed each class: introduction/warmup (6-8 minutes), instruction/practice (14-18 minutes), summary/warm down (6-8 minutes). Most individuals with mental disabilities respond positively to highly structured and consistent environments. Given this knowledge, teachers should attempt to provide a structured environment, particularly during early learning, to facilitate skill acquisition. Standardized procedures such as formations and rules are also recommended. Demonstrations, for example, may always be given with the students arranged in an established formation (semi-circle, on prearranged spots or carpet squares, etc.) which the students know to get in whenever they are told "class demonstration". For practice periods, the gym or classroom may be divided into established stations that focus on the specific components of each skill being addressed. The point is to minimize any confusion or uncertainty that may interfere with instruction and subsequent student learning. A minimum number of simple rules and signals should also be established and consistently enforced to maintain class management.

Planning for Success

Planning for Success is the key to the prescription process. Many students with mental disabilities have had long histories of failure in physical education and with motor skills in general. Therefore, they are not highly motivated to attend to or work on skills in this area. It is essential that students both achieve and perceive that they are being successful during each class, especially during the early phases of instruction. Planning for success is dependent on accurate assessment data, selection of appropriate instructional activities, and the use of systematic and explicit feedback. Since someone must always lose (fail) in competitive games, these should generally be avoided during skill instruction. Whether students are successful is relative to the standards to which they are compared. As a general rule, if an appropriate standard is not specified by the teacher (i.e., "can you bounce the ball using only your finger tips two times") students will tend to imply their own standard (i.e., being able to continuously bounce a ball while moving), which commonly is based on the ideal or mature performance of the skill. For many students with mental disabilities, the ideal performance will be a long term goal and is not an appropriate standard for comparison. Teachers must therefore carefully plan instruction so that students are given realistic expectations and feedback in regard to their performance related to these expectations.

Maximize on Task Time

On task time refers to the amount of instructional time that students actually spend working on the objectives targeted for instruction. While on task time is important in all learning environments, it is particularly important to monitor in physical education due to the nature of the instructional environment and the limited amount of time available. In many physical education programs, on task time can be as low as 5 -10% when the focus is on playing games (playing kickball to learn how to run, throw, kick and catch) rather than teaching specific objectives. Given that an average student only receives 90 hours (36 weeks X 5 days per week X 30 minutes per day) of physical education instruction in a year, 10% on task time would mean that they were only working on instructional objectives in physical education for approximately 9 hours for the entire year. This obviously is not enough time to develop the muscular strength and coordination needed to learn motor skills or develop physical fitness. Teachers must, therefore, plan to optimize on task time in physical education if they truly want to develop motor skills. Some example techniques for maximizing on task time are:

1. Plan instruction around the objectives to be taught and select drills and activities that involve high participation of all students.

2. Minimize the student:equipment ratio so that students do not spend time waiting in line to use equipment.

3. Have equipment set up prior to class and establish procedures for quickly assigning and retrieving equipment from students.

4. Utilize established signals and formations for instruction, thereby reducing the amount of instructional time spent on managerial tasks.

5. Avoid elimination activities where students are "put out" and must wait until the game is finished before they can participate again.

6. Plan for time efficient transitions between activities. Students could practice select locomotor skills while moving between instructional stations.

7. Modify equipment and set up instructional stations to maximize practice and reduce time off task. Throwing, for example, can be practiced with paper balls which can be made in great numbers, do not travel far and will not roll when they land on the floor. Using paper balls allows this activity to be practiced safely in a small area and enhances repetitive practice by reducing the amount of time required to chase down and collect the balls.

8. If aides are available, use them efficiently. Aides must know the objectives (qualitative components) being taught as well as the specific components targeted for instruction for each student they are working with in order to facilitate learning.

Additional ideas for increasing on task time, planning for success and improving the clarity and consistency of instruction can be found by reviewing the curriculum materials described at the end of the Assessment section of this chapter.

TEACHING

Teaching can be defined as the management of the instructional environment so that the desired learning outcomes are achieved. Inherent in this definition of teaching is that the teacher must first have the students under instructional control and second must have an instructional plan to achieve some desired changes in behavior. The focus on teaching in this section will be limited to highlighting a few exemplary teaching practices which have been found to be most effective when teaching motor skills to students with mental disabilities:

1. Demonstrate and model the desired behaviors frequently.

2. Use physical manipulation so that the students feel (kinesthetically) what the correct movement should feel like in contrast to their current movements.

3. Give explicit, immediate, personal and timely feedback.

Research has shown that modeling is one of the most effective methods for teaching individuals with mental disabilities motor skills. Modeling is sometimes narrowly defined as giving correct demonstrations of desired behaviors during instruction. In physical education, modeling includes continuous modeling of desired fitness and motor skill behaviors and attitudes as well. For example, demonstrating how to correctly perform a bent knee situp is important during instruction on this skill but it is equally important to model on a regular basis that this skill must be performed by everyone (including the teacher) to maintain one's abdominal strength and endurance. This does not imply that every teacher must be an expert in all the motor skills being taught. In fact, in many cases teachers can use

a deficit in their performance as a model. Teachers can point out the weaknesses in their own performance and ask the class to help them improve during the unit. Done properly this can be extremely powerful motivator for students with mental disabilities.

Modeling is dependent upon the learners being able to compare their performance with a visual image of the desired pattern. For many individuals with mental disabilities it is hard for them to accurately evaluate their own performance. When shown demonstrations of correct and incorrect patterns of a skill, it is not uncommon for students with mental disabiities to insist that their pattern looks like the correct pattern when, in fact, it does not. What is lacking in these cases is a kinesthetic awareness of what their body parts are actually doing. While the desired movements could be verbally described, the most efficient way to communicate the desired movements in a pattern is to physically manipulate the student's body through the pattern. The combination of physical manipulation with a few carefully selected key words (reach, step, throw, follow-through) is the ideal way to teach motor skills to the mentally disabled.

Positive and immediate feedback is an inherent part of all good teaching. A good procedure for providing effective feedback in physical education is to employ the following rule. All instructional statements should have four parts: a positive word, the student's name, a statement of something that was done correctly, and a suggestion of something that can be improved (e.g., "Good Mary, that was nice arm extension, now let's concentrate on that big step on the next throw"). In addition to being able to provide positive feedback, teachers must make sure that they distribute it equally. Analyses of teachers' feedback behaviors indicate that they do not equally distribute their positive reinforcements. As a general rule, the better performing students tend to demand and receive more positive reinforcement from the teacher and poorer performing students tend to avoid being observed by the teacher and subsequently receive less positive reinforcement. Teachers must therefore devise a systematic procedure to ensure that all students are observed regularly and receive appropriate amounts of positive reinforcement.

Self-paced and self-reinforcing activities are recommended to keep student motivation high and to allow the teacher to move freely between stations. Suspending a tambourine against a wall as a target and marking lines on the floor every two feet from the target is an example of a self-rewarding and self-paced activity for throwing. Students can be instructed to start at the first line (2 feet from the target) and to throw balls until they hit the target three times in a row. Then they should move back to the next line (4 feet) and throw from that distance until they hit the target three times. This procedure is repeated until they reach the distance at which they need to practice (where they can not hit the target consistently three times in a row). As a general rule, targets that make lots of noise are very effective for students with mental disabilities, as long as the teacher can tolerate the noise in the environment.

For higher level students with mental disabilities, individual progress charts and wall progress charts can also be very reinforcing. Qualitative assessment charts (preferably using pictures to illustrate the various components of the skill) can be posted on the walls of the classroom or the gym. Each time students achieve a component or a step in the task analysis, they can be given a

sticker to put on their chart. This form of progress chart focuses the students' attention on the qualitative components of the skill and also provides the teacher with a continuous evaluation record of how the students are progressing.

Non-explicit general feedback (e.g., "Good work class"), on the other hand, should generally be avoided. This form of feedback does not indicate what specifically was done correctly. Odds are that several students in the class just finished doing something markedly wrong with the pattern being practiced and when non-explicit positive feedback is given, these students are reinforced for doing this incorrect behavior.

In physical education, teachers must also be very aware of what they communicate to students via their non-verbal behavior. For most students with mental disabilities, teachers' behaviors are very powerful stimuli whether they be positive or negative, intentional or unintentional. Teachers must therefore be sure that they model and communicate a positive, enthusiastic, consistent, and highly confident attitude toward physical and motor skills. In fact, it is probably safe to say that these teacher behaviors are prerequisites to the effective provision of instruction in physical education.

EVALUATION

Evaluation can be formal and informal and occurs at two levels: student and program. During instruction, student evaluation is synonymous with continuous assessment and is an integral part of planning appropriate instruction and providing instructional feedback. Formal student evaluation is usually associated with making progress reports to assign a grade, determine the appropriateness of a given placement or develop a new IEP. Student evaluation is primarily designed to communicate to students, parents and others how individual students are doing in the program. Student evaluation reports commonly include the following information:

1. The instructional objectives that were worked on.
2. The student's entry status on each objective (present level of performance).
3. The student's exit status on each objective.
4. The student's expected progress on each objective (short term instructional objectives).
5. The student's actual net progress on each objective.
6. The student's status relative to his or her continuous progress (long range goals).
7. The student's status relative to his or her peers.

Figure 5 illustrates a sample student progress report generated by the Physical Education Management System (Kelly, 1986). The reverse side of the report contains a complete description of each objective and instructions on how to interpret each column of the report.

Figure 5

Sample Student Progress Report Generated by the Physical Education Management System (Kelly, 1986)

PHYSICAL EDUCATION MANAGEMENT SYSTEM

STUDENT PROGRESS REPORT

UNIVERSITY OF VIRGINIA
MOTOR DEVELOPMENT CLINIC

STUDENT NAME: PETER KAMADE

REPORT DATE: 06/15/86

GRADE LEVEL: 8

TEACHER: LUKE KELLY

NUMBER OF STUDENTS IN THE CLASS = 24

OBJECTIVES	ENTRY LEVEL	TARGET EXIT	ACTUAL EXIT	NET CHANGE	TARGET GOAL MET	MASTERY	% MASTERY TO DATE	CLASS AVERAGE (EXIT)	DIFFER FROM CLASS
ABDOMINAL STRENGTH	25.00	35.00	37.00	12.00	YES	40.00	92.00	31.25	5.75
LEG STRENGTH	8.20	7.80	7.70	.50	YES	7.80	101.00	8.52	.82
AGILITY	11.10	10.70	10.20	.90	YES	9.20	90.00	10.15	-.05
ARM-SHOULDER STRENGTH	8.00	11.00	13.00	5.00	YES	18.00	72.00	15.08	-2.08
CARDIO-RESP. ENDURANCE	629.00	607.00	584.00	45.00	YES	600.00	102.00	713.45	129.45
FLEXIBILITY	18.00	22.00	18.00	0.00	NO	22.00	81.00	22.16	-4.16
FOREHAND STROKE	8.00	13.00	16.00	8.00	YES	15.00	106.00	14.66	1.34
BACKHAND STROKE	6.00	12.00	12.00	6.00	YES	15.00	80.00	14.41	-2.41
TENNIS SERVE	4.00	10.00	9.00	5.00	NO	14.00	64.00	13.12	-4.12
TENNIS RULES TEST	61.00	85.00	100.00	39.00	YES	85.00	117.00	87.04	12.96

The Physical Education Management System (PEMS) was designed for adapted physical educators to assist them in managing large numbers of special education students and to provide a quantitative means by which to evaluate student progress and the appropriateness of physical education placements. The individual target exit values (short term goals) are set for each student by the teacher following preassessment and prior to initial instruction in the unit. The mastery levels indicate the long term goals for each objective, the point at which functional competency will have been achieved and instruction would be terminated. Students' progress in relation to the target expectancies and mastery provide the basis for monitoring and evaluating IEPs. The appropriateness of a given student's placement is interpreted by the direction and magnitude of the values in the last column (difference from the class average). If large positive or negative values are consistently obtained in this column, the student's placement should be reevaluated. Large negative values are usually indicative of high failure situations which should be immediately addressed.

Program evaluation is concerned with addressing two questions:

1. Overall, has instruction been effective - are students achieving target expectancies?

2. Overall, are program goals and objectives being achieved - are students mastering program objectives in accordance with the program plan?

Program evaluation is typically performed by looking at the cumulative performance of a class or a group of students as opposed to individual students. Figure 6 illustrates a sample Class Report generated by the PEMS. The report column headings are the same as the Student Report but the values represent the mean performance of the students in the class. These data can be used by teachers to determine how effective their instruction has been overall. If students are not achieving target expectancies or making reasonable progress toward mastery levels on specific objectives, then the teacher needs to evaluate how these objectives were taught:

1. Was enough time spent on these objectives:instruction, practice, on task?

2. Were the instructional activities and games appropriate?

3. Were facilities, equipment and staff used efficiently?

4. Were students grouped effectively for instruction?

5. was appropriate and timely feedback provided?

6. Were the students ready to work on these objectives?

If problems are identified at the lesson level, these should be remediated first. If more time is found to be required or the objectives are judged to be inappropriate, then changes should be made to the program plan. The purpose of program evaluation is to allow for continuous review and revisions to the program plan to ensure that the program goals will be achieved.

Figure 6

Sample Class Progress Report Generated by the Physical Education Management System (Kelly, 1986)

PHYSICAL EDUCATION MANAGEMENT SYSTEM

CLASS REPORT

BIG VALLEY SCHOOL DISTRICT
SMITH ELEMENTARY

REPORT DATE: 03/15/85 TEACHER: MR. JOE JOHNSON
GRADE LEVEL: 03/15/85 CLASS: MRS. SMITH'S CLASS
NUMBER OF STUDENTS IN THE CLASS = 6

OBJECTIVES	CLASS MEAN ENTRY	CLASS MEAN EXIT	CLASS MEAN NET CHANGE	CLASS MEAN TARGET	CLASS MEAN TARGET CHANGE	MASTERY	CLASS MEAN % MASTERY	% OF CLASS ACHEIVING MASTERY
ABDOMINAL STRENGTH	17.33	21.83	4.50	21.33	4.00	35.00	62.38	******
LEG STRENGTH	8.55	7.88	.66	7.88	.66	6.50	82.45	16.66
SOCCER RULES TEST	68.33	90.83	22.50	90.00	21.66	90.00	100.92	66.66
KICKING TEST	5.33	9.33	4.00	10.00	4.66	10.00	93.33	66.66

SPORTS AND RECREATION OPPORTUNITIES

As discussed in the beginning of this chapter, physical education is one of several fields which contribute to the total physical and motor development of students. Physical education, particularly for individuals with mental disabilities, must be integrated with community-based recreation programs if it is truly going to play a valuable role in later life. In simple terms, physical education is primarily responsible for the development of physical and motor skills and recreation programs are responsible for providing opportunities for citizens (children and adults) to use their skills in recreational activities. The transition from school-based instructional programs to community-based recreation programs does not just magically happen for individuals with mental disabilities. Physical educators must, therefore, take the initiative to integrate their programs with the local recreation programs and to initiate and facilitate communication between these programs.

The ultimate goal of physical education is to provide students with functional skills they can use to the maximum extent possible as independently as possible in the

community during their leisure time for personal enjoyment. Physical and motor skill based activities are the most desirable for individuals with mental disabilities since they contribute to maintaining good health and in many cases to job performance. Sport and recreational programs must be carefully selected or created to meet this goal. In many communities, unfortunately, the existing programs tend to dictate the goals.

Special Olympics, for example, in many schools provides an excellent opportunity for students to apply the physical and motor skills they have learned in physical education in a competitive environment at local, state, regional, and national competitions as well as to experience and learn many other valuable skills. This program, however, should not be used as a substitution for physical education or as the only sports and recreational opportunity available to the mentally disabled. Instead, Special Olympics should be viewed as one of several available opportunities in the community that should be used as a stepping stone towards independence. Special Olympics does offer a wide variety of team and lifetime sports many of which could have carryover value to later life (i.e., swimming, skiing, bowling), however, for many individuals with mental disabilities competing in these events is tied directly to the school aged years and limited to a few specific events. If this is the only skill instruction and recreational experience they are provided, what skills and opportunities are they prepared to take advantage of after the school years?

Transition programs should be designed which stress the development of independent and functional physical and motor skills in community-based settings. For the majority of individuals with mental disabilities, these programs should stress participation and enjoyment rather than competition and focus on individual rather than team sports. Given the cognitive and social characteristics of the mentally disabled, it is more realistic to expect them to be able to individually (or possibly with one or two other persons) organize and participate in an individual sport activity (swimming, biking, hiking, dance, etc.) than to organize or play in a team sport. For example, it would be more reasonable to expect individuals with mental disabilities, living in a group home in the community, to participate in aerobic dance classes at the local recreation center than it would be for them to successfully participate in the local competitive softball league.

SUMMARY

Physical education is a direct service which should be provided to all students with mental disabilities. Although individuals with mental disabilities have historically shown relatively large deficits in their physical and motor development, research indicates that these deficits can be remediated and that functional physical and motor skills are very important for the mentally disabled in terms of their occupational and leisure needs after the school years. Instruction in physical education for the mentally disabled should be guided by a comprehensive plan which outlines long term goals (end of the K-12 program) and a sequential series of objectives that leads to the attainment of these goals. The program plan can be established by either modifying the regular physical education curriculum for the mildly disabled or by designing individualized programs for the more severely disabled. Qualitative (criterion-referenced) tests should then be used to assess, prescribe, implement, and continuously evaluate instruction. Teachers should model and communicate in their attitudes and behaviors high levels of interest, enthusiasm, and confidence in motor skills and their ability to teach these skills. Lessons should

be planned and instruction implemented to maximize student success, time on task, and repetition of desired behaviors on specific instructional objectives. Demonstrations and physical manipulation are used during instruction to communicate both correct and incorrect performances. Non-competitive games and activities should be carefully selected to match specific instructional objectives. Explicit and systematic feedback should be communicated to all students during instruction. Continuous evaluation procedures, both formal and informal, must be employed so that both teachers and students can be apprised of their performance and appropriate and timely changes made to instruction or the program plan. Finally, the physical education program must be integrated with the community-based recreation programs to facilitate the transition from instruction to independent use of leisure skills in community recreation settings.

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